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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KEITH A. TABOR

Appeal 2009-004052
Application 10/810,377[1]
Technology Center 2100

Decided: April 15, 2010

Before JEAN R. HOMERE, DEBRA K. STEPHENS, and JAMES R. HUGHES, *Administrative Patent Judges.*

HUGHES, *Administrative Patent Judge.*

DECISION ON APPEAL

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[1] Application filed March 26, 2004. The real party in interest is HUSCO International, Inc. (Br. 1.)

STATEMENT OF THE CASE

The Appellant appeals the Examiner's rejection of claims 1-28 under authority of 35 U.S.C. § 134(a). The Board of Patent Appeals and Interferences (BPAI) has jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

Appellant's Invention

Appellant invented a control system and method for controlling fluid flow to multiple hydraulic actuators in order to move a combination of mechanical components of, for example, a telehandling machine. Specifically, the control system method actuates a first actuator to produce a desired first velocity to change the angle of a machine member, and actuates a second actuator to produce a second desired velocity to change the length of the machine member in response to an operator input command. (Spec. ¶¶ [0001]-[0008].)[2]

Representative Claim

Independent claim 1 further illustrates the invention. It reads as follows:

> 1. A method for controlling movement of a member wherein an angle of the member with respect to a reference is alterable by a first actuator and a length of the member is alterable by a second actuator, the method comprises:

[2] We refer to Appellant's Specification ("Spec.") and Amended Appeal Brief ("Br.") filed September 12, 2007. We also refer to the Examiner's Answer ("Ans.") mailed October 31, 2007.

producing a command which designates a desired velocity that a point on the member is to travel along a desired substantially straight line path;

transforming the command into a desired first velocity of the first actuator;

transforming the command into a desired second velocity of the second actuator;

operating the first actuator in response to the desired first velocity to alter the angle of the member; and

operating the second actuator based on the desired length velocity to alter the length of the member.

References

The Examiner relies on the following references as evidence of unpatentability:

Igarashi	US 4,332,517	Jun. 1, 1982
Brandt	US 6,374,153 B1	Apr. 16, 2002

Rejections on Appeal

The Examiner rejects claims 1-7, 9-13, 15-18, and 20-28 under 35 U.S.C. § 102(b) as being anticipated by Brandt.

The Examiner rejects claims 8, 14, and 19 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Brandt and Igarashi.

GROUPING OF CLAIMS

(1) Appellant argues claims 1-4 as a group on the basis of independent claim 1. (Br. 7-9.) We select independent claim 1 as the representative claim. We therefore treat claims 2-4 as standing or falling with representative claim 1.

(2) Appellant argues claims 5-7, 9, 11-13, 16, 20, 22-28 as a group on the basis of independent claim 5. (Br. 9-11.) We select independent claim 5 as the representative claim. We therefore treat claims 6, 7, 9, 11-13, 16, 20, and 22-28 as standing or falling with representative claim 5.

(3) Appellant argues claim 10, 15, 17, 18, and 21 separately. (Br. 9-11.)

(4) Appellant argues claims 8, 14, and 19 as a group on the basis of independent claim 5. (Br. 11-12.) Appellant also makes separate arguments with respect to claims 8 and 19. (Br. 12.) We select dependent claim 5 as the representative claim, and treat claim 14 as standing or falling with representative claim 5. We accept Appellant's grouping of the claims. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

ISSUES

Based on Appellant's contentions, as well as the findings and conclusions of the Examiner, the pivotal issues before us are as follows.

1. Does the Examiner err in finding that the Brandt reference discloses each of the disputed limitations as recited in Appellant's claims?

2. Does the Examiner err in finding that the Brandt and Igarashi references collectively teach or suggest each of the disputed limitations as recited in Appellant's claims?

FINDINGS OF FACT (FF)

Appellant's Disclosure

1. Appellant concedes that "[b]oth [Appellant's] system and the one disclosed in the [Brandt] reference control linear extension of a boom

and the up and down rotation of the boom." Appellant, however, asserts that the systems "control that rotation in very different manners." (Br. 6.)

Brandt Reference

2. Brandt describes an apparatus and method for controlling a work (load-engaging) member of a machine utilizing coordinated linear horizontal and vertical movement of the member. (Col. 1, ll. 6-10, ll. 42-59.) Brandt describes providing joystick input commands to produce desired horizontal and vertical (X and Y axis) velocity signals (requests) that in turn produce linear horizontal and vertical movement of the member. (Col. 3, ll. 19-26, 52-61; col. 4, ll. 5-10.)

3. Brandt describes a control system that receives position signals from angle position and length sensors on boom of the machine. The control system processes the position signals and the desired velocity signals provided from the input joystick to generate commands to a hydraulic controller that coordinates the flow of hydraulic fluid to a first (angular) actuator and second (length) actuator. (Col. 3, ll. 27-36, 52-61.)

4. Brandt describes transforming the desired velocity signals into velocities of the first and second actuators. (Col. 3, ll. 52-61; col. 4, ll. 5-10; col. 4, l. 37 to col. 5, l. 25; Figs. 1, 3.) Brandt's control system transforms the desired velocity signals (requests) into desired angular and linear velocities of the boom. (Col. 3, ll. 16-26, 58-61; col. 4, ll. 5-13, 37-44.) The control system transforms the desired angular and linear velocities of the boom into hydraulic flow ratios. (Col. 5, ll. 14-19.) The control system transforms the hydraulic flow ratios into current values that control electro-hydraulic valves that in turn control hydraulic flow to the actuators. (Col. 5,

ll. 20-25.) The hydraulic flows to the actuators actuate (extend or move) the actuators producing velocities (rates of movement) of the actuators. (Col. 4, ll. 64-67.)

PRINCIPLES OF LAW

Burden on Appeal

The allocation of burden requires that the United States Patent and Trademark Office (USPTO) produce the factual basis for any rejection in order to provide an applicant with notice of the reasons why the applicant is not entitled to a patent on the claim scope sought. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984); *Ex Parte Frye*, No. 2009-006013, 2010 WL 889747, *3 (BPAI) (Precedential). An appellant has the opportunity on appeal to the Board to demonstrate error in the Examiner's position. *See In re Kahn,* 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.") (quoting *In re Rouffet*, 149 F.3d 1350, 1355 (Fed. Cir. 1998), *overruled in part on other grounds*, *KSR*, 550 U.S. at 422); *Ex Parte Frye*, 2010 WL 889747 at *4.

Anticipation

Anticipation is a question of fact. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Under 35 U.S.C. § 102, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros.,*

Inc. v. Union Oil Co. of Cal., 814 F.2d 628, 631 (Fed. Cir. 1987) (citations omitted); *see also Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005) (citation omitted).

Obviousness

A claimed invention is not patentable if the subject matter of the claimed invention would have been obvious to a person having ordinary skill in the art. 35 U.S.C. § 103(a); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007); *Graham v. John Deere Co.*, 383 U.S. 1, 13 (1966). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art. *Graham*, 383 U.S. at 17. *See also KSR*, 550 U.S. at 407 ("While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.")

In *KSR*, the Supreme Court emphasizes "the need for caution in granting a patent based on the combination of elements found in the prior art," and stated that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 550 U.S. at 415, 416. The operative question is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.* at 417.

ANALYSIS

Issue 1: Rejection of claims 1-7, 9-13, 15-18, and 20-28 under 35 U.S.C. § 102(b)

Claims 1-4:

Appellant contends that the Brandt reference does not disclose the limitation of "transforming the command into a desired first velocity of the first actuator" as recited in Appellant's claim 1 (Br. A-1, claim 1). (Br. 7-9.) The Examiner finds that the Brandt reference discloses transforming an input command into velocity of the first actuator. (Ans. 4, 19-22.) Accordingly, we decide the question of whether the Brandt reference discloses "transforming the command into a desired first velocity of the first actuator" as recited in Appellant's claim 1.

After reviewing the record on appeal, we agree with the Examiner, and we find Brandt discloses the disputed limitation. We begin our analysis by construing Appellant's claim 1. We determine the scope of the claims in patent applications not solely based on the claim language, but upon giving claims "their broadest reasonable interpretation consistent with the [S]pecification" and "in light of the [S]pecification as it would be interpreted by one of ordinary skill in the art." *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (citations omitted). Appellant's claim 1 recites a limitation of "transforming the command into a desired first velocity of the first actuator." We broadly but reasonably construe this limitation to simply mean changing or converting a user input (command) into a wanted (desired) actuator velocity.

Appellant concedes that the Brandt reference discloses a similar machine performing the identical functions – controlling linear extension

and angular (vertical) rotation of the boom. (FF 1.) The velocity of both Appellant's and Brandt's actuators translates into motion of their booms, which is controlled by the user through operation of the input commands (joystick motion). Thus, for both Appellant's and Brandt's machines, the actuator velocity wanted by the user (desired velocity) is indicated through the input commands. Although Appellant asserts the claimed system and that of Brandt control the boom in a different manner (FF 1), we find the Brandt reference discloses a method for controlling a load-engaging member of a machine utilizing joystick input commands to produce desired horizontal and vertical velocity signals, and transforming the desired velocity signals into velocities of the first and second actuators. (FF 2-4.) Thus, we find Appellant's disputed limitation reads on this disclosure of Brandt.

We are not persuaded by Appellant's contrary arguments that Brandt's "flow percentages do not indicate the absolute amount of flow to each actuator," and thus do not "correspond to a desired velocity of the first actuator . . . that pivots the boom." (Br. 8-9.) Brandt explicitly states that "the desired and actual velocity ratios represent the desired and actual velocities of the first actuator 140, relative to the desired and actual velocities of the second actuator 150." (Brandt, col. 4, ll. 64-67; FF 4.)

Moreover, the Examiner provides detailed findings and conclusions with respect to the Brandt reference. (Ans. 4, 19-22.) Appellant did not file a Reply Brief, nor did Appellant provide any persuasive evidence supporting the assertions of alleged error in the Examiner's position. Accordingly, Appellant has not persuaded us to find error in the Examiner's anticipation rejection of claims 1-4.

Claim 5:

Appellant contends that the method of claim 5 "transforms a straight line motion command into an angular velocity and a length velocity for a machine member[, and] [t]hen that angular velocity is converted into a desired velocity of the first actuator that pivots the member." (Br. 9.) The Examiner finds that the Brandt reference discloses transforming an input command into an angular velocity and a length velocity, and converting these into a velocity of the first actuator. (Ans. 6, 19-22.) Accordingly, we decide the question of whether the Brandt reference discloses "transforming the command into a desired angular velocity and a desired length velocity for the member[, and] converting the desired angular velocity for the member into a desired first velocity of the first actuator" as recited in Appellant's claim 5.

After reviewing the record on appeal, we agree with the Examiner, and we find Brandt discloses the disputed limitations. We find that Brandt's control system transforms the desired velocity signals into desired angular and linear velocities of the boom. (FF 4.) The control system then converts the desired angular and linear velocities of the boom into hydraulic flow ratios, which produce the desired velocities of the actuators. (FF 4.)

As we previously explained with respect to claim 1, *supra*, we find Appellant's contrary arguments – that Brandt's flow percentages do not correspond to a desired velocity of the first actuator that pivots the boom (Br. 9) – to be unavailing. The Brandt reference describes performing functions identical to those claimed by Appellant – controlling linear extension and angular (vertical) rotation of the boom.

Moreover, the Examiner provides detailed findings and conclusions with respect to the Brandt reference. (Ans. 6, 19-22.) Appellant did not file a Reply Brief, nor did Appellant provide any persuasive evidence supporting the assertions of alleged error in the Examiner's position. Accordingly, Appellant has not persuaded us to find error in the Examiner's anticipation rejection of claim 5.

As we previously explained, Appellant argues claims 5-7, 9, 11-13, 16, 20, 22-28 as a group on the basis of independent claim 5 (Br. 9-11), and does not separately argue claims 6, 7, 9, 11-13, 16, 20, and 22-28. We note that Appellant does separately mention claims 20 and 25, but merely reiterates the arguments made with respect to claim 5. (Br. 10-11.) We address only those arguments that Appellant presents in the Brief. Arguments that Appellant could have made but chose not to make in the Brief are waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007). Accordingly, we find that claims 6, 7, 9, 11-13, 16, and 20-28 stand with claim 5, and Appellant has not persuaded us to find error in the Examiner's anticipation rejection of these claims.

Claim 10:

Appellant contends Brandt does not disclose "sensing the dimension of the second actuator which varies that length, and then converting the sensed dimension into the length of the member." (Br. 9.) The Examiner finds that Brandt discloses a length sensor that senses the length of a member. (Ans. 7-8, 23-24.) We find, however, that sensing the length of a member is not the same as sensing the dimension (length) of the actuator itself. While Brandt discloses a length (position) sensor on its boom (FF 3),

it does not explicitly or inherently disclose sensing the dimension of the actuator that varies the length of the member. While it is certainly possible to derive an actuator length dimension from the length of the member described in Brandt, we are constrained by the record before us to find that Brandt does not disclose sensing the actuator dimension. Accordingly, Brandt does not anticipate at least one limitation of Appellant's claim 10, and we therefore find that the Examiner erred in rejecting claim 10.

Claim 15:

Appellant contends Brandt does not disclose "sensing a first parameter senses a dimension of the first actuator," as recited in claim 15. (Br. 10.) The Examiner finds that Brandt discloses an angle sensor that senses the angle of a member. (Ans. 9, 24-25.) We find, however, that sensing the angle of a member is not the same as sensing the dimension (length) of the actuator itself. While Brandt discloses an angle (position) sensor on its boom (FF 3), it does not explicitly or inherently disclose sensing the dimension of the actuator that varies the angle of the member. While it is certainly possible to derive an actuator length dimension from the angle of the member described in Brandt, we are constrained by the record before us to find that Brandt does not disclose sensing the actuator dimension. Thus, we find that Brandt does not anticipate Appellant's claim 15, and the Examiner erred in rejecting claim 15.

Claim 17:

Appellant contends Brandt does not disclose "sensing a second parameter of the machine senses a dimension of the second actuator," as

recited in claim 17. (Br. 10.) As with claim 10 discussed *supra*, we find Brandt does not disclose sensing the dimension of the actuator that varies the length of the member. Thus, we find that Brandt does not anticipate Appellant's claim 17, and the Examiner erred in rejecting claim 17.

Claim 18:

Appellant contends Brandt does not disclose "sensing a first parameter of the first actuator" and "sensing a second parameter of the second actuator," as recited in claim 18. (Br. 10.) As with claims 10 and 15 discussed *supra*, we find Brandt does not disclose sensing parameters of the actuators themselves. Thus, we find that Brandt does not anticipate Appellant's claim 18, and the Examiner erred in rejecting claim 18.

Claim 21:

Appellant contends Brandt does not disclose "sensing a second parameter comprises sensing a dimension of the second actuator," as recited in claim 21. (emphasis added) (Br. 11.) As with claim 10 discussed *supra*, we find Brandt does not disclose sensing the dimension of the actuator that varies the length of the member. Thus, we find that Brandt does not anticipate Appellant's claim 21, and the Examiner erred in rejecting claim 21.

Issue 2: Rejection of claims 8, 14, and 19 under 35 U.S.C. § 103(a)

Appellant contends that Brandt does not teach the equations contained in claim 8, that "the specific equations contained in claim 8 are significantly

different from the equations recited in the Igarashi" reference, the claimed equations include variables not included in Igarashi's equations (the pitch angle and the angular pitch velocity), and Igarashi describes an excavator with "dissimilar components and dramatically different motion" – making "the equations for Igarashi['s] excavator inapplicable to [Brandt's] telehandler. (Br. 12.) The Examiner finds that Brandt does not disclose the equations of Appellant's claim 8, but Igarashi does disclose these equations. (Ans. 17, 29.)

After reviewing the record on appeal, we agree with the Appellant that neither Brandt, nor Igarashi teach or suggest the equations of Appellant's claim 8. Igarashi describes velocity equations for a different set of components and motions, as explained by Appellant. Igarashi does not describe identical or even similar velocity equations to those recited in Appellant's claim 8. Nor, does the Examiner explain how or why a skilled artisan could or would derive the equations of Appellant's claim 8. We are, therefore, constrained by the record before us to find that the Brandt and Igarashi references do not collectively teach or suggest the recited equations. Accordingly, the combination of Brandt and Igarashi does not render obvious Appellant's claim 8, and we therefore find that the Examiner erred in rejecting claim 8.

As we previously explained, Appellant argues claim 14 on the basis of independent claim 5 (Br. 11-12), and does not separately argue claim 14. Accordingly, we find that claim 14 stands with claim 5, and Appellant has not persuaded us to find error in the Examiner's obviousness rejection of claim 5.

Appellant asserts that claim 19 is patentable for the same reasons as claim 18 from which it depends. Because we do not find, and the Examiner does not establish, that Igarashi overcomes the deficiencies of Brandt, we also reverse the Examiner's rejection of claim 19 under 35 U.S.C. § 103(a) for the same reasons previously presented with respect to claim 18, *supra*.

CONCLUSIONS OF LAW

On the record before us, we find Appellant has not established that the Examiner erred in rejecting claims 1-7, 9, 11-13, 16, and 20-28 under 35 U.S.C. § 102. We find Appellant has also not established that the Examiner erred in rejecting claim 14 under 35 U.S.C. § 103. We find Appellant has established that the Examiner erred in rejecting claims 10, 15, 17, 18, and 21 under 35 U.S.C. § 102. We also find Appellant has established that the Examiner erred in rejecting claims 8 and 19 under 35 U.S.C. § 103.

DECISION

We affirm the Examiner's rejection of claims 1-7, 9, 11-13, 16, and 20-28 under 35 U.S.C. § 102(b).

We affirm the Examiner's rejection of claim 14 under 35 U.S.C. § 103(a).

We reverse the Examiner's rejection of claims 10, 15, 17, 18, and 21 under 35 U.S.C. § 102(b).

We reverse the Examiner's rejection of claims 8 and 19 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

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